



MATERIAL SAFETY DATA SHEET

SECTION 1 - MATERIAL IDENTIFICATION AND USE

MATERIAL

NAME - IDENTIFIER:

STEEL FOUNDRY FILTER CORES

| | | | |
|---------------------------|-----------------|------------------------|-----------------|
| MANUFACTURER NAME: | | SUPPLIER NAME: | |
| Apogee Ceramics Inc. | | Apogee Ceramics Inc. | |
| STREET ADDRESS: | | STREET ADDRESS: | |
| 71 Folsetter Dr. | | 71 Folsetter Dr. | |
| CITY: | COUNTRY: | CITY: | COUNTRY: |
| Paris, Ontario | Canada | Paris, Ontario | Canada |
| POSTAL CODE: | PHONE: | POSTAL CODE: | PHONE: |
| N3L 0E2 | 519-442-3636 | N3L 0E2 | 519-442-3636 |

| | | |
|--------------------------|-----------------------------------|--|
| CHEMICAL NAME: | CHEMICAL FAMILY: | CHEMICAL FORMULA: |
| Aluminous Silicates | Clay | $3\text{Al}_2\text{O}_3 - 2\text{SiO}_2$ |
| MOLECULAR WEIGHT: | MATERIAL USE: | |
| | MANUFACTURING END USE | |
| OXIDE CONTENT: | Al_2O_3 : 59.38 % | |
| | SiO_2 : 38.39 % | |
| | CaO : 0.18 % | |
| | MgO : 0.10 % | |
| | NaO_2 : 0.15 % | |
| | Fe_2O_3 : 0.67 % | |
| | TiO_2 : 0.65 % | |
| | K_2O : 0.13 % | |

SECTION 2 - HAZARDOUS INGREDIENTS

| | | | |
|---|----------|-------------------------------|--------------------------|
| HAZARDOUS INGREDIENTS | % | UN. NA OR CASE NUMBERS | LD/50 OF MATERIAL |
| NONE ALL PRODUCTS ARE FIRED TO A MINIMUM OF 1250 °C AND ARE CONSIDERED TO BE CHEMICALLY INERT. | | | |

SECTION 3 - PHYSICAL DATA

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|--------------------------------|-------------------------------------|--------------------------------|--------------------------|------------------------------------|
| PHYSICAL STATE: | | ODOUR AND APPEARANCE: | | ODOUR THRESHOLD |
| GAS () LIQUID () SOLID (X) | | ODOUR/GREY | | (PPM): N/A |
| VAPOUR PRESSURE | FREEZING POINT (°C): | VAPOUR DENSITY (AIR-1): | EVAPORATION RATE: | BOILING POINT (°C): |
| (mm Hg): N/A | N/A | N/A | N/A | N/A |
| % VOLATILE (BY VOLUME): | SOLUBILITY IN WATER (20 °C): | BULK DENSITY: | SPECIFIC GRAVITY: | COEFFICIENT WATER OIL DIST: |
| N/A | N/A | 2.19 g/cc. TYPICAL | 3.05 | N/A |



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SECTION 4 - FIRE AND EXPLOSIVE DATA

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|---|---|---|---------------------|
| FLAMMABILITY | | | |
| YES () NO (X): IF YES, UNDER WHICH CONDITIONS? | | | |
| MEANS OF EXTINCTION: | | | |
| SPECIAL PROCEDURE: | | | |
| FLASH POINT (°C) AND METHOD: N/A | UPPER EXPLOSION (% BY VOLUME): N/A | LOWER EXPLOSION LIMIT (% BY VOLUME): N/A | |
| AUTO IGNITION TEMPERATURE (°C): N/A | TDG FLAMMABILITY CLASSIFICATION: N/A | HAZARDOUS COMBUSTION PRODUCTS: N/A | |
| EXPLOSION DATA: | SENSITIVITY TO STATIC DISCHARGE: | EXPLOSIVE POWER: | RATE OF BURNING: |
| SENSITIVITY TO IMPACT: N/A | N/A | N/A | N/A |

SECTION 5 - REACTIVITY DATA

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|---|--------------|
| CHEMICAL STABILITY | |
| YES (X), NO () IF NO UNDER WHICH CONDITIONS? | |
| COMPATIBILITY WITH OTHER SUBSTANCES | |
| YES (X), NO () IF NO, WHICH ONES? | |
| REACTIVITY UNDER WHICH CONDITIONS: | NON-REACTIVE |
| HAZARDOUS DECOMPOSITION PRODUCTS: | N/A |

SECTION 6 - TOXICOLOGICAL PROPERTIES

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| ROUTE OF ENTRY: | | | |
| SKIN CONTACT () | SKIN ABSORPTION () | EYE CONTACT () | INHALATION ACUTE (X) |
| INGESTION () | | | INHALATION CHRONIC (X) |
| EFFECTS OF ACUTE EXPOSURE TO MATERIAL: | | | |
| NO EFFECT OTHER THAN AS NUISANCE DUST (WHEN MACHINING IS REQUIRED). | | | |
| EFFECTS OF CHRONIC EXPOSURE: | | | |
| LONG TERM EXPOSURE TO RESPIRABLE CRYSTALLINE SILICA CAN CAUSE SILICOSIS. | | | |
| LD/50 OF MATERIAL: N/A | LC/50 OF MATERIAL: N/A | EXPOSURE LIMIT OF MATERIAL: 5 mg/m | IRRITANCY OF MATERIAL: N/A |
| SENSITIZING CAPABILITY OF MATERIAL: N/A | CARCINOGENICITY OF MATERIAL: N/A | REPRODUCTIVE EFFECTS OF MATERIAL: N/A | SYNERGISTIC MATERIALS: N/A |



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SECTION 7 - PREVENTIVE MEASURES

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| PERSONAL PROTECTIVE EQUIPMENT: RESPIRATOR RECOMMENDED WHEN DUST IS CREATED DUE TO MACHINING OF FIRED CERAMICS. PROTECTIVE EYE WEAR, GLOVES RECOMMENDED IN CASE OF BROKEN FRAGMENTS. | | |
| GLOVES (SPECIFY): SEE ABOVE | RESPIRATORY (SPECIFY): WHERE TLV IS EXCEEDED | EYE (SPECIFY): SEE ABOVE |
| FOOTWEAR (SPECIFY): N/A | CLOTHING (SPECIFY): N/A | OTHER (SPECIFY): N/A |
| ENGINEERING CONTROLS (SPECIFY E.G. VENTILATION ENCLOSED PROCESS): N/A | | |
| LEAK AND SPILL PROCEDURE: N/A | | |
| WASTE DISPOSAL: N/A | | |
| HANDLING PROCEDURES AND EQUIPMENT: N/A | | |
| STORAGE REQUIREMENTS: N/A | | |
| SPECIAL SHIPPING INFORMATION: N/A | | |

SECTION 8 - FIRST AID MEASURES

IN CASE OF EYE INJURY, SEVERE CUTS FROM SHARP BROKEN CERAMIC FRAGMENTS, CONSULT PHYSICIAN IMMEDIATELY.

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| SOURCES USED: |
| ADDITIONAL INFORMATION: |

SECTION 9 - PREPARATION DATE OF THE MSDS

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| PREPARED BY (GROUP, DEPARTMENT, ETS) Operations Manager Apogee Ceramics Inc. | PHONE NUMBER: 519-442-3636 | DATE PREPARED: June 29, 2017 |
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